

REMARKS

Claims 20 and 46 have been amended. New claims 48-54 have been added. No new matter has been added by virtue of the present response.

Accordingly, claims 1, 12-20 and 45-54 are pending in the subject application. It is respectfully requested that the pending claims 1, 12-20 and 45-54 be reconsidered and passed to issuance in view of this response.

In the Office Action, the pending claims stand rejected on 103 grounds, based on the Lin et al. patent (U.S. Patent No. 6,124,177 hereinafter referred to as "Lin") individually and in combination with the other references of record. In response, Applicants respectfully submit that independent claims 20 and 46, as amended, are not taught or suggested by Lin, alone, or in combination with the other references of record. Applicants' invention provides for a T-shaped gate having a diffusion region 34 defined by/aligned to edge 27 of upper part 26 of gate 20 as shown in FIG. 3a of the present application.

In regards to Lin, Applicants note that a 35 U.S.C. 102(e) rejection to the claims based on Lin were previously overcome in Applicants' response of March 26, 2003 to which the Examiner responded in the subsequent Office Action of June 18, 2003 with a new grounds of rejection based on Long. Applicants' response of February 2, 2004 appears to have overcome the rejections based on Long as the Examiner stated a new grounds for rejection based once again on Lin. The claims presented in Applicants' response of February 2, 2004 are substantially identical to the claims presented in Applicants' response of March 26, 2003, with the exception of the limitation of the "air gap" added to claim 20. Therefore, Applicants respectfully submit the rejections to the claims based on Lin were previously overcome in Applicants' response of March 26, 2003.

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Re-iterating what was stated in the response of March 26, 2003, the Lin patent neither teaches nor suggests the invention as recited in the claims as presented herein. For example, as Lin shows in FIGS. 6-8 and discusses in column 5, line 20 to column 6, line 34, Lin forms a SINGLE dopant region 24, 25 defined by/aligned to a first conductive material (i.e. gate electrode 22). As shown in Fig. 6 of Lin, gate electrode 22 is used as a mask during an implantation step to form dopant region 24, 25. Dopant region 24, 25 is self-aligned only to gate electrode 22. Note, second conductive material (i.e. metal layer 32) is NOT present during the step of implanting to form dopant region 24, 25. Metal layer 32 is formed AFTER the implantation step to form dopant region 24, 25. Lin does not teach or suggest forming any portion of dopant region 24, 25 with metal layer 32 present during the single implantation step. Thus, no portion of dopant region 24, 25 is defined by or aligned to metal layer 32 since metal layer 32 is not present during the formation of dopant region 24, 25.

Applicants also note that Lin relies on a single implantation through upper edges of gate electrode 22 in order to form dopant region portion 25. Lin relies on the relatively thin upper edges of gate electrode 22 to behave as a mask to create a graded dopant profile in dopant region portion 25. Lin provides no teaching or suggestion of implanting through metal layer 32 to form any portion of dopant region 24, 25. Having metal layer 32 formed prior to implantation would thicken the edges of gate electrode 22 and prevent impurity from being implanted into the substrate.

And, since Lin relies on a single implant step with part of the implant going through the edges of gate electrode 22, dopant region 24, 25 is implanted with the same species so dopant region 24, 25 is the SAME conductivity type throughout (i.e. N-). Lin provides no teaching or suggestion for forming dopant region 24, 25 having different conductivity types, that is, portion 24 being a first conductivity type and portion 25 being a second conductivity type.

Therefore, Lin provides no motivation to one of ordinary skill in the art to incorporate a

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diffusion region defined by/aligned to an upper part of a T-shaped gate. Since this feature of the invention is neither taught nor suggested by Lin, alone, or in combination with Lin as suggested by the Examiner, Applicants respectfully submit that the prior art rejections of record to claims 20 and 46 (as well as the other pending claims depending thereon) have been traversed.

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CONCLUSION

In light of the foregoing remarks, all of the claims now presented are believed to be in condition for allowance, and Applicants respectfully request that the outstanding rejections be withdrawn and this application be passed to issue at an early date.

The Examiner is urged to call the undersigned at the number listed below if, in the Examiner's opinion, such a phone conference would aid in furthering the prosecution of this application.

Respectfully submitted,

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